AMENDMENTS TO THE SPECIFICATION:

Please amend the Brief Description of the Drawings section of the specification beginning at page 8, line 11 as follows:

Brief Description of the Drawings

Figure 1 shows pictures of blood vessel perfusion in rabbit corneas. Activated Factor XIII was injected into the right cornea and a similar volume of PBS (saline) was injected into the left cornea. Fig. 1A shows the PBS-treated negative control. Fig. 1B shows the activated Factor XIII-treated cornea, 48 hours post-injection. Fig. 1C shows the activated Factor XIII-treated cornea, 72 hours post-injection.

Figure 2 shows histological sections of rabbit corneas. Rabbit corneas were treated as described above for Figure 1. The corneas were excised, fixed in 4% paraformaldehyde, and stained with hematoxylin-eosin for histological evaluation by light microscopy and with GSLI-isolectin B_4 for evaluation of blood vessels. Fig. 2A shows the hematoxylin-eosin stain of PBS-treated cornea. Fig. 2B shows the hematoxylin-eosin stain of activated Factor XIII-treated cornea. Fig. 2C shows the GSLI-isolectin B_4 stain of activated Factor XIII-treated cornea.

Figure 3 shows histological sections of polymerized basement membrane preparations from mice. Control or Factor XIII-knock out mice were injected subcutaneously with a polymerized basement membrane preparation. After two weeks, the polymerized preparation was dissected and analyzed by CD31 staining to detect endothelial cells.

Figure 4 shows histological sections from ischemic rat hearts. Rat coronary arteries were ligated and the hearts were injected with saline, basic fibroblast growth

factor (bFGF) or activated Factor XIII every 7 days for three weeks. The cardiac tissue was fixed in 4% paraformaldehyde and stained with hematoxylin-eosin for histological evaluation by light microscopy and with GSLI-isolectin B_4 for evaluation of blood vessels. Fig. 4A shows hematoxylin-eosin staining of ischemic rat hearts. Fig. 4B is representative of neovascularization of rat hearts.

Figure 5 shows pictures of blood vessel perfusion in transplanted neonatal mouse hearts. Neonatal murine hearts were transplanted into host mice and treated with activated Factor XIII or saline. After one week, the transplanted cardiac tissue was analyzed for new vessel formation and representative pictures of saline-treated and activated Factor XIII-treated mice are shown.

Please amend the paragraph at page 2, lines 18-26 as follows:

It is also known that activated FXIII (FXIIIa) supports angiogenesis by enhancing endothelial cell migration, proliferation, and survival. In an in vitro model of angiogenesis, FXIIIa significantly enhances tube formation in MATRIGEL (basement membrane matrix; Becton Dickinson) ~~Matrigel~~. In addition, in an in vivo model FXIIIa induces new vessel formation in a rabbit cornea. The proangiogenic effect of FXIIIa is associated with downregulation of thrombospondin (TSP-1) (Dardik R., Solomon A., Loscalzo J., Eskaraev R., Bialik A., Goldberg I., Schiby G., Inbal A. Novel proangiogenic effect of Factor FXIII (FXIII) associated with suppression of thrombospondin 1 (TSP-1) expression. Arteriose Thromb Vasc Biol 2003; 23:1472-1477).

Please amend the paragraph bridging pages 3-4 as follows:

The source of FXIII was FXIII concentrate, Fibrogammin® (Aventis Behring). To obtain activated FXIII (FXIIIa) 2 ml of reconstituted 100 U/ml (approximately 1000 μg/ml) FXIII was incubated with thrombin immobilized on ~~Affi-gel~~ AFFI-GEL 10 (activated affinity medium; Bio Rad) beads. One milliliter of packed bead volume contained 200 U of thrombin. Ten millimolar $CaCl_2$ was added, and the mixture was incubated at 37°C for 2 hours. FXIII activation was monitored by measuring FXIII activity using a chromogenic assay (BERICHROME ~~Berichrome~~, Dade Behring). Leakage of thrombin from the beads into the FXIII solution was excluded by the lack of color development upon addition of a thrombin-specific chromogenic substrate (S2238, Chromogenix, Sweden). FXIIIa was inactivated by treatment with 3 mmol/l iodoacetamide (Sigma) for 30 minutes at 22°C to block transglutaminase activity; free iodoacetamide was then removed by dialysis.

Please amend the paragraph at page 5, lines 13-21 as follows:

Control (n=6), FXIII-knock outs (n=6) and FXIII-knock out mice treated with FXIII (n=6) were anesthetized with an intraperitoneal injection of pentobarbital (50 mg/kg). A sterile mix of ~~Matrigel~~ MATRIGEL (basement membrane matrix; Becton Dickinson) (0.5 ml), heparin (20 units/ml), and bFGF (200 ng/ml), with or without FXIIIa (Fibrogammin.RTM.; 10-20 units) was injected subcutaneously. At the end of two weeks mice were euthanized. The MATRIGEL ~~Matrigel~~ plug was dissected from the subcutaneous tissue and analyzed after staining with hematoxylin-eosin for histological evaluation by light microscopy and with GSLI--isolectin B4 for evaluation of blood

vessels. In addition, haemoglobin of the vessels grown into the matrigel plaque was measured.

Please amend the paragraph bridging page 5, line 23 through page 6, line 2 as follows:

The FXIII activity in plasma of mice FXIII -/- measured by Berichrom assay was undetectable. Histological analyses of the MATRIGEL (basement membrane matrix; Becton Dickinson) ~~matrigel~~ sections showed significantly increased numbers of new vessels in the control mice compared to that of the knock out mice. In a representative picture shown in FIG. 3 the amount of new vessels formed in control animals was significantly increased. The number of new vessels in the entire group of FXIII -/- mice was significantly decreased compared to that of control mice: 5.9 ± 1.9 vs. 8.8 ± 2.4, and the number increased after FXIII treatment to 7.4 ± 2.9, p=0.004 (Table 1). The values of haemoglobin measured from the vessels/MATRIGEL ~~matrigel~~ tissue (reflecting the number of blood vessels containing red blood cells) were significantly increased in the control group 4.6 ± 2.5 μg/mg MATRIGEL ~~matrigel~~ vs. 1.3 ± 1.0 μg/mg MATRIGEL ~~matrigel~~ in the FXIII knock out mice and the haemoglobin increased by almost 2-fold in the FXIII knock out mice treated with FXIII concentrate, p=0.001 (Table 1).

Please amend Table 1 on page 9 as follows:

Table 1. Murine MATRIGEL (basement membrane matrix; Becton Dickinson) ~~Matrigel~~ Plug Model

	Control N = 6	$FXIII^{-/-}$ N=6	$FXIII^{-/-}$ +FXIIIa N=5	P ANOVA
Number of new vessels/mm^2	8.8 ± 2.4	5.9 ± 1.9	7.4 ± 2.9	0.004
Hb (μg/mg MATRIGEL ~~matrigel~~)	4.6 ± 2.5	1.3 ± 1.0	2.4 ± 0.6	0.001